Exploring Biocatalyzed Lactone Building Blocks Toward Biobased Polyesters

Propositions

belonging to the dissertation:

Exploring biocatalyzed lactone building blocks toward biobased polyesters

1. The fields of biocatalysis, polymer chemistry, and sustainable chemistry would gain to learn from each other.

2. One should not fail to recognize the opportunity offered by biocatalysis to synthesize unique molecules whose structure is otherwise not accessible *via* 'classical' oxidative chemistry (H. L. Messiha et al. *Biochemistry* **2018**, *57*, 1997-2008).

3. The biobased characteristics of enzymes do not make enzymatic reactions green by default; such statements must be demonstrated (**Chapter 9** of this thesis).

4. A chemical structure may be deceivingly simple and yet the corresponding NMR spectrum may be challenging to assign.

5. Changing the position of a simple methyl group on the structure of a lactone has a drastic effect on its reactivity upon ring opening polymerization (**Chapter 5** of this thesis).

6. The application of biocatalysts for the large scale synthesis of monomers is only possible with the integration of process intensification in mind (**Chapters 3** and **4** of this thesis).

7. It is possible to tune the incorporation of regio-isomeric lactones in a polyester solely based on the reaction temperature (**Chapter 5** of this thesis).

8. Lactones do not only smell good, they are also versatile building blocks that find application in many fields.

9. A multidisciplinary approach is necessary for a truly biobased economy.